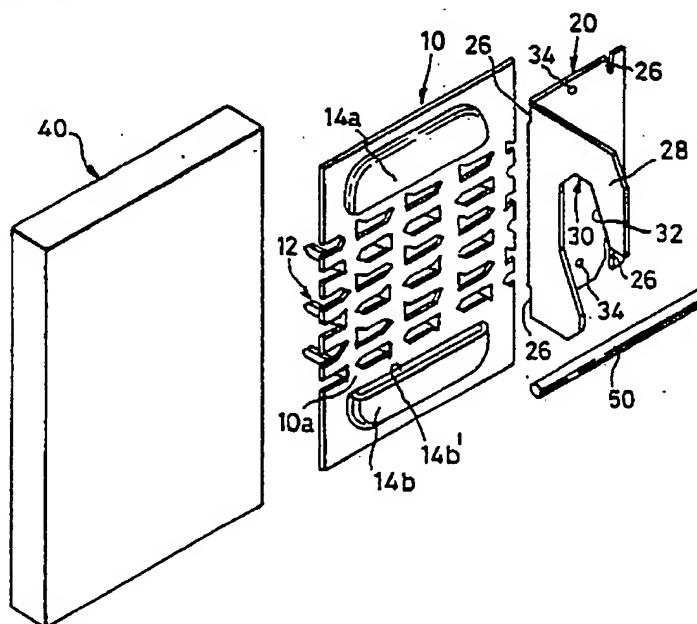




INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

| | | |
|--|-----------|---|
| (51) International Patent Classification 5 : E04B 2/74, F16B 5/06 | A1 | (11) International Publication Number: WO 91/14057 (43) International Publication Date: 19 September 1991 (19.09.91) |
| (21) International Application Number: PCT/GB91/00384 (22) International Filing Date: 12 March 1991 (12.03.91) (30) Priority data: 9005507.0 12 March 1990 (12.03.90) GB 9019595.9 7 September 1990 (07.09.90) GB (71) Applicant (for all designated States except US): GNS UK LIMITED [GB/GB]; Christy Estate, Ivy Road, Aldershot, Hampshire GU12 4AG (GB). (72) Inventors; and (75) Inventors/Applicants (for US only): COX, Christopher, Valentine [GB/GB]; Browns Walk, Boundstone, Farnham, Surrey GU10 4AG (GB). WHALE, Luke, Richard, John [GB/GB]; Stonehill, Lymington Bottom Road, Medstead, Alton, Hampshire GU34 5EP (GB). SHUTTLE, Alan, Peter [GB/GB]; 16 Copse Avenue, Weybourne, Farnham, Surrey GU9 9ED (GB). BEALE, Leonard, Michael [GB/GB]; 5a Wrecclesham Hill, Farnham, Surrey GU9 4JM (GB). | | (74) Agent: SMITH, Gillian, Ruth; Marks & Clerk, 57-60 Lincoln's Inn Fields, London WC2A 3LS (GB). (81) Designated States: AT, AT (European patent), AU, BB, BE (European patent), BF (OAPI patent), BG, BJ (OAPI patent), BR, CA, CF (OAPI patent), CG (OAPI patent), CH, CH (European patent), CM (OAPI patent), DE, DE (European patent), DK, DK (European patent), ES, ES (European patent), FI, FR (European patent), GA (OAPI patent), GB, GB (European patent), GR (European patent), HU, IT (European patent), JP, KP, KR, LK, LU, LU (European patent), MC, MG, ML (OAPI patent), MR (OAPI patent), MW, NL, NL (European patent), NO, PL, RO, SD, SE, SE (European patent), SN (OAPI patent), SU, TD (OAPI patent), TG (OAPI patent), US. Published With international search report. Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments. |

(54) Title: A CONNECTING DEVICE



(57) Abstract

The invention provides a connecting device for releasably connecting two objects, comprising a base plate (10) fixedly attachable to first of the objects (40) and at least one projection (20) extending therefrom so as to cooperate with receiving means located on the second object (50), characterised in that the projection (20) is releasably mounted on the base plate (10) via interengaging means (14a, 14b, 24a, 24b). This arrangement allows accurate and secure alignment of the base plate (10) at any convenient time up to connection of the two objects (40, 50), particularly during formation or immediately after formation of the first object (40). The projection (20) can be attached at any subsequent convenient time which means that the first object (40) can be stored, transported and handled without the projection (20) attached. This makes storage, transportation and handling easy and economical. The connecting device is particularly suitable for mounting cladding panels on a framework.

A Connecting Device

The invention relates to a connecting device, particularly but not exclusively to a device for connecting cladding panels to framework to form demountable partitioning.

Some known connectors suffer from the disadvantage that the cladding panels cannot be fitted closely to the supporting framework. Other known connectors require to be fixed to the panels on site and this can result in misalignment of the connectors with respect to the framework.

It is an object of the present invention to provide a connector which is cheap and simple to produce and enables a panel to be fitted closely to supporting framework. It is a further object of the invention to provide a connector which can be fixedly attached to a panel in accurate alignment easily and cheaply. A further object is to provide a connector which can be used with all known systems of cladding and framework.

The invention provides a connecting device for releasably connecting two objects, comprising a base plate fixedly attachable to first of the objects and at least one projection extending therefrom so as to

In a preferred embodiment, the interengaging means comprise at least one tongue located on a connecting plate attached to the projection, and at least one corresponding panel located on the base plate and adapted to receive the at least one tongue. Such an arrangement enables the projection to be easily, quickly and accurately connected to the base plate. The base plate is preferably fixedly attachable to the first object by means of a series of metal prongs or gang nails. Alternative fixing means could also be employed, such as screws or nails which may be passed through appropriate apertures in the base plate.

It will be appreciated that in its preferred construction the connector lends itself to being fabricated as simple sheet metal pressings. However, the connector portions may also be fabricated by any other suitable means, such as moulding from a suitable plastics or composite material.

The invention also provides a method of releasably connecting two objects utilising a connecting device as described above comprising the step of (a) fixedly attaching the base plate of the connecting device to a first of the objects, (b) releasably securing the at least one projection to the base plate, and (c) bringing the projection into cooperation with receiving means located on the second object.

An embodiment of the present invention will now be

Figures 1 and 2. The projection portion 20 consists of a connecting plate 22 having longitudinally extending tongues 24a and 24b at either end thereof. Slots 26 define the transverse edges of the tongues 24a and 24b. One side of the connecting plate is connected to a projection 28 which extends perpendicularly from the connecting plate 22. The connecting plate 22 has a generally diamond-shaped recess 30 having an upper edge 32 inclined toward the connecting plate 22. The tongues 24a and 24b also carry protruding deformations 34 whose function will be described below. Both the base plate 10 and the projection portion 20 are pressed from sheet steel blanks.

A method of utilising the connecting device described above will now be described with reference to Figure 5. It is envisaged that this type of connecting device will be utilised in the releasable connection of a cladding panel to a framework comprising horizontal tubular members. The prongs or gang nails 12 are initially forced into the inner surface of the cladding panel 40 in order to fixedly attach the base plate 10 thereto. Advantageously, this step is carried out before the cladding panel is transported to its on site location in order that accurate alignment of a series of base plates required to be attached to the panel can be carried out either during production of the panel or shortly thereafter. The base plate 10 can be affixed to

tongues 24a and 24b and the channels 14a and 14b.

Once the projection portion 20 has been connected to the base plate, the substantially diamond-shaped recess 30 can be used as locating means to locate the cladding panel 40 on the supporting framework 50. The inclined surface 32 encourages the framework 50 to be located at the upper end of the recess 30 or until the panel 40 abuts vertical portions of the framework without further guiding means being necessary. The weight of the cladding panel 40 maintains the upper tongue 24a of the projection portion 20 in an uppermost position in the upper channel 14a of the base plate 10 wherein the base plate 10 and the projection 20 cannot become detached.

Clearly, it is a simple matter for the cladding panel 40 to be removed from the framework 50 for any reason whatsoever, for example, to provide access to a void in the partition to allow the installation or maintenance of services such as electrical or data wiring or to relocate the entire partition. The panel merely has to be lifted so as to disengage the projection portion 20 from the framework 50 and the panel 40 becomes freely moveable. However, this releasing of the panel does not in any way render useless the components of the connecting device. The panel 40, base plate 10 and projection portion 20 can be re-used elsewhere as desired.

The above described embodiment is not intended to be

particularly massive or likely to be put under considerable loading. Alternatively, separate interengaging means could be provided on the base plate for receiving a second projection portion.

In a further adaption of the invention, the base plate could be dispensed with and fixing means such as gang nails could be provided directly on the projection portion. In this way, the projection portion can be fixedly attached to the panel at any convenient time.

A connecting device according to the present invention is not limited in its application to connecting cladding panels to a framework. Many other uses are envisaged in any situation where an object is desired to be connected to another object in a releasable manner. Also, the design of the projection can be varied so as to provide other types of connection rather than a hooking device. A sprung clip could, for example, be used as an alternative to or be incorporated into the projection.

least one tongue located on a connecting plate attached to the projection, and at least one corresponding channel located on the base plate and adapted to receive the at least one tongue.

6. A connecting device as claimed in claim 5, wherein two tongues and two channels are provided.

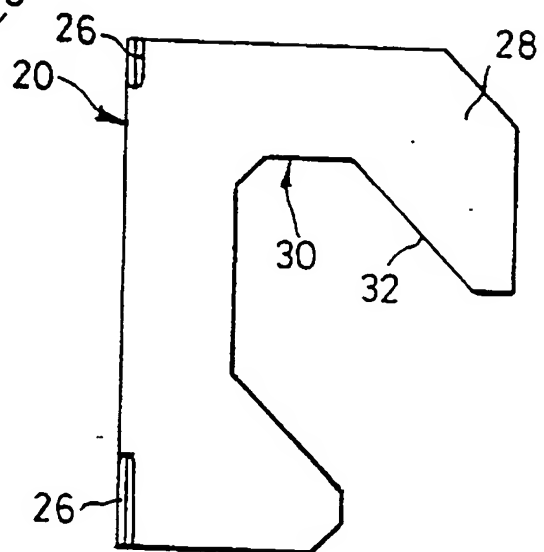
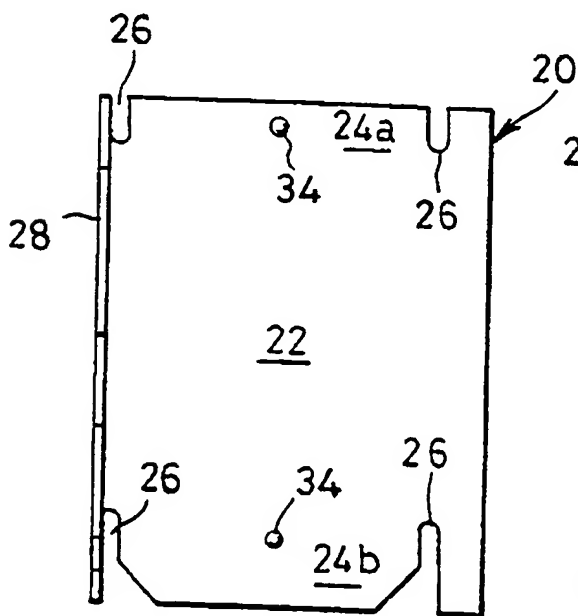
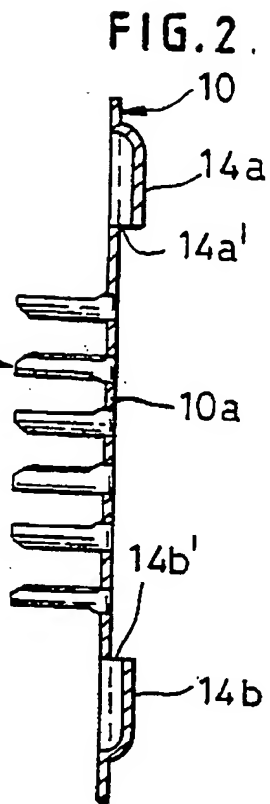
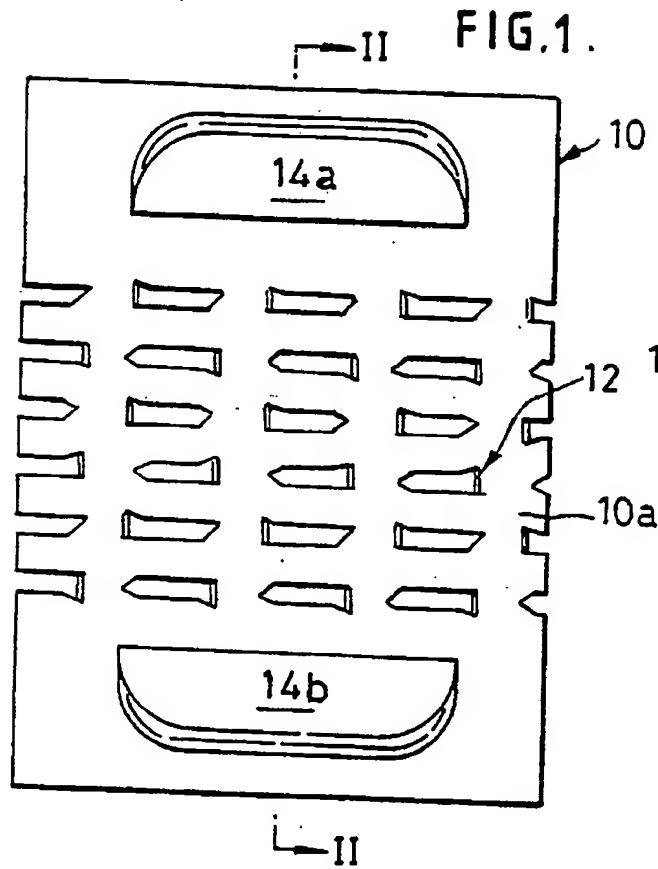
7. A connecting device as claimed in claim 5 or 6, wherein the or each tongue has a protruding deformation to facilitate holding of a said tongue in a respective channel.

8. A connecting device as claimed in any one of claims 5 to 7, wherein the or each channel is formed by pressing.

9. A connecting device as claimed in any one of the preceding claims, wherein the base plate is fixedly attachable to the first object by means of gang nails located in the base plate.

10. A connecting device as claimed in any one of the preceding claims, wherein the device is specifically adapted for use in releasably securing cladding panels to a framework.

1/2



ANNEX TO THE INTERNATIONAL SEARCH REPORT
ON INTERNATIONAL PATENT APPLICATION NO.

PCT/GB 91/003
SA 45328

This annex lists the patent family members relating to the patent documents cited in the above-mentioned international search report.
The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

11/06/91

| Patent document cited in search report | Publication date | Patent family member(s) | Publication date |
|---|---------------------|----------------------------|---------------------|
| CA-A-1044870 | 26-12-78 | BE-A- 868770 | 05-01-79 |
| | | GB-A- 1600887 | 21-10-81 |
| FR-A-2434905 | 28-03-80 | CA-A- 1079024 | 10-06-80 |
| | | CH-A- 632796 | 29-10-82 |
| | | NL-A- 7906507 | 04-03-80 |
| | | US-A- 4245448 | 20-01-81 |

EPO FORM P0479

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82